No. I.—Vol. I.

OF THE

USEFUL CABINET.

JANUARY, 1808.

DESCRIPTION OF THE DEVICE IN THE TITLE PAGE, REPRESENTING THE SEAL OF THE ASSOCIATION.

A TREE, richly laden with Fruit, is encircled by a Wall; within the enclosure is TIME, who, having thrown his Scythe into the back ground is watering the root of the Tree.

APPLICATION.

THE Fruitful Tree represents the Benefits which Society may derive from the Labours of the Inventor, if properly secured by a Wall of Protection. The nourishment received from the hand of TIME, is emblematical of the long and arduous attention necessary for bringing to maturity Useful Improvements. The Motto "IN ITS OWN SOIL, PROTECT AND NOURISH IT," is a simple dictate of common sense, respecting the Fruit of Genius in our own Country. The initials, N. A. U. A. for designating the members, are abbreviations of the words *Newengland Associated Useful Artists.*

INTRODUCTION.

THE Newengland Association of Inventors and Patrons of Useful Arts, having offered for subscription the Prospectus of this Work, the Editors are sensible that the public will expect, in this first number, to be informed of the origin and design of the Association. It has been contemplated for several years by some of its members, who are Inventors and Patentees of what they believe to be useful improvements in science and arts; that an association of inventors, patentees, proprietors of patent rights by purchase, persons possessing extraordinary practical skill in some useful art or science, authors of valuable treatises relating thereto, with a proportion of such gentlemen as are considered to be patrons of useful artists; would be highly advantageous to inventors and beneficial to society. Utility is the object of the establishment, the public therefore will not look into the pages of the Useful Cabinet for refined philosophical speculations. Of those benefits which may be anticipated, from this first institution of

the kind in America, the following present themselves as natural consequences:

From a liberal disposition to protect and patronize the productions of genius, each individual will receive advice and assistance for defending his rights, and will share in the benefit of that general patronage, which the spirit of the association is calculated to produce. Genius may be drawn from obscurity by medals premiums and honorary notice, and talents directed to pursuits of real utility. Differences may in many instances, be adjusted between contending inventors who shall desire it.—In the Public Cabinet such models will be preserved, as will aid inventive genius in pursuits which are practicable, and may prevent a waste of time in those which are not.—In the Private Cabinet, the first outlines of a new machine may be deposited by the inventor, who thereby obtains security, against the pirating attempts of others. The opinions and advice of competent judges can always be obtained by an inventor, respecting mechanical movements of doubt and difficulty. The Library of the Association with their models and records, will in time, furnish a mass of information to the artist, which he can obtain from no other quarter. If similar societies be instituted in other places, a travelling member of one Association, will meet friends wherever he shall find an establishment of the same nature, and mutual aids can be interchanged.

Theory and practice, so generally separated, will be invited to an intimate union. Finally the good of society, and the designs of this institution are so inseparably blended, that the success of the Association will be the success of the public.

With such designs and expectations the Association is formed, under the Direction of the following Officers, viz.

A President, a Vice President, Six Counsellors, three Directors, a Recording, and a Corresponding Secretary, a Treasurer, and a Treasurer's Clerk.

The Constitution provides that one half of the whole number of members, shall consist of men, who have added to the arts or to science, some approved invention or discovery. It provides also for a Library, Public Cabinet, a Private Cabinet, and a Laboratory or work shops, when the funds of the Association shall be competent thereto.; the infant state of which will retard the complete acquirement, of the benefits contemplated by the Society. To the other sources provided for the requisite funds of the association, will be added such yearly profit as may be produced by this publication, the design of which as anounced by the Prospectus is, to collect and diffuse valuable knowledge; its pages will be open for Essays and communi-

cations in all the Arts and Sciences; but Inventions and Improvements in the more ordinary and useful branches, and especially in labour-saving Machines for the common purposes of life, will be entitled to the highest consideration. In the different numbers of this paper will appear such of the transactions of the Association as require being made public; and such communications and extracts as may in any degree contribute toward increasing the general stock of human happiness, by diffusing in arts and in morals, those principles on which usefulness and happiness depend. And it shall be the duty of the Editors to make it a vehicle of general information, respecting the progress of Useful Arts, but more particularly of new Inventions and Discoveries in America. But no controversial essays of religious sectaries or party politics will ever be received. The Association shall be the proprietors of this paper, which will be published monthly, at their expense, on the days of their meetings, and will be edited by those of their members, whom they shall annually, or otherwise elect for the purpose. It will contain such engravings and descriptions, as the Association shall from time to time direct; to which will be added extracts and communications, selected by the editors.

As their funds at the commencement of the Institution will be contracted, a set of THE USEFUL CABINET, *containing twelve numbers will in the first instances, be the only premium in their power to offer for stimulating genius in honorable pursuits.*

The Copy right is secured that the Association may receive the benefit of a future Edition, if the public favor should justify the measure, but it is not meant to restrain printers of news papers, from making occasional extracts, for the information or amusement of their readers; nor can it be understood as designed to prevent any Author of a Communication to this Work, from publishing the same in any volume of his own.

All Communications for these numbers, may be addressed to the Editors of the Useful Cabinet, *and left with* EPHRAIM C. BEALS, *Printer and Agent for the Association, at No.* 10, *State-Street, Boston.*

FOR THE USEFUL CABINET.

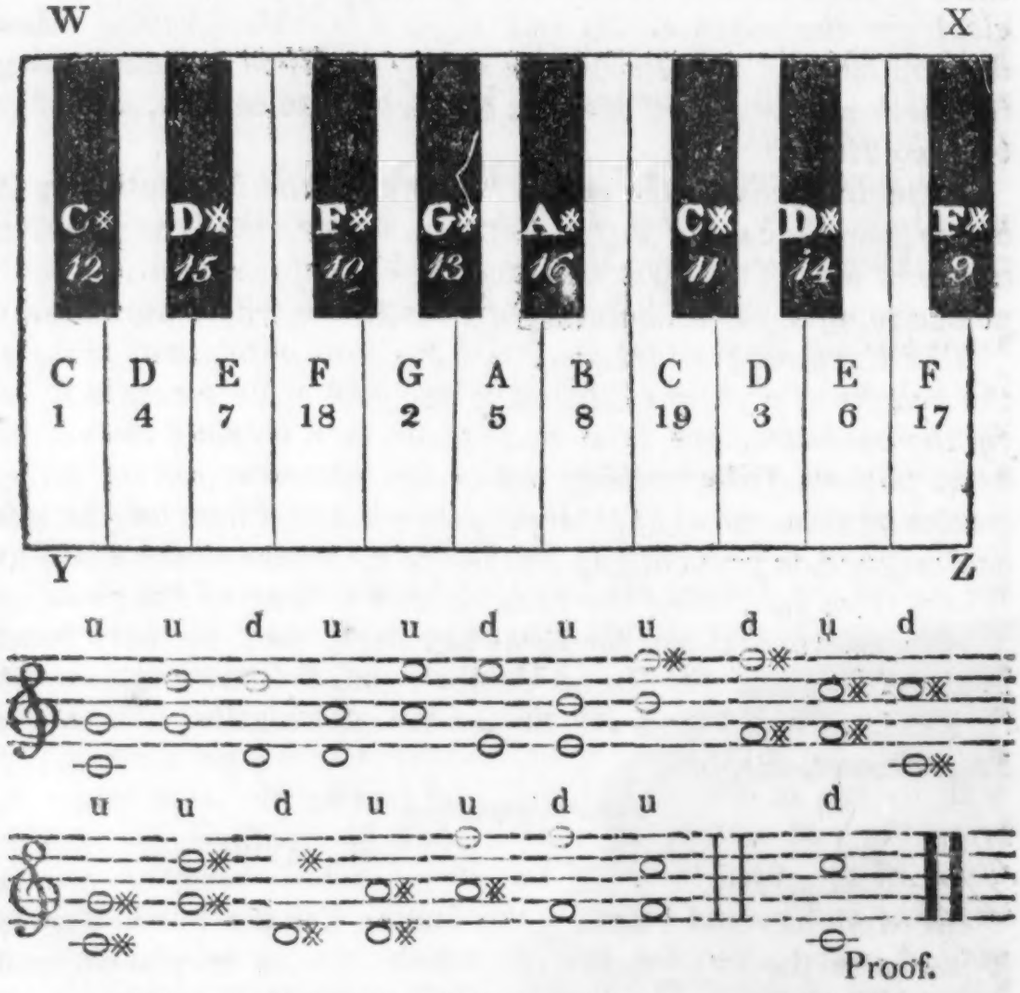
MESSRS. EDITORS,

AS Music is ranked among the fine arts, and a knowledge of it increases the enjoyments of domestic life, a communication calculated to remove or reduce any inconvenience attending its practice, may be acceptable to the public. I therefore inclose you a Mathematical Rule for tuning Keyed Instruments, which was

some years since given me by a friend, and is so simple in its application, that any person whose ear will distinguish a Fifth and an Octave, may by a little practice acquire sufficient information for tuning Keyed Instruments, with a degree of precision fully satisfactory to all whose theories are not too refined, to leave a possibility of applying them in practice.

In country towns generally, and sometimes in sea-ports, it is difficult to obtain the assistance of a person skilled in the art of tuning Instruments; for instruction therein is rarely, if ever given by the Music-Master to his Pupil; hence the common occurrence of a valuable Instrument remaining out of tune so long, as in a measure to diminish if not destroy the natural taste for music, which was evident in the scholar while under the direction of a tutor. If you think these inconveniences may be in any measure removed by publishing the inclosed Rule, please to give it a place in your *Useful Cabinet*.

A MATHEMATICAL RULE FOR TUNING KEYED INSTRUMENTS.



DIRECTIONS FOR TUNING BY THE ABOVE PLATE.

The figure W. X. Y. Z. represents nineteen Keys of the Organ, Piano Forte, Harpsichord, &c. The first on the left hand,

marked C. 1, may represent any C. of the Keys, provided there be as many above it, as are drawn in the figure, but it is most convenient to begin with C. nearest the centre of the finger-board, which must be tuned by a Tuning Fork or otherwise, to the pitch required. The other Keys as in the above figure are then to be tuned by Fifths and Octaves only, seven Semitones above or below any note constituting a Fifth to that note, and twelve Semitones an Octave, which is the principle whereon this mode of tuning is founded. G. 2, is next to be tuned, making it a Fifth above C. 1; then D. 3, a Fifth above G. 2; then D. 4, an Octave below D. 3; next A. 5, a Fifth above D. 4; E. 6, a Fifth above A. 5; and E. 7, an Octave below E. 6; thus advancing by two Fifths upwards, and an Octave downwards, through the nineteen Keys above described, except that from F𝄪. 10, but one Fifth upwards is to be taken, as may be seen by the figures, then proceed as before, until the order of the figures stops on C. 19, if that note then prove to be a correct Octave with the first, or C. 1, the work is right, if not it must be repeated until it will prove correct by this test. All the other Keys of the Instrument are to be tuned Octaves to the above nineteen. N. B. In tuning the Fifths, they must be kept as flat as they will bear.

The notes accompanying the figure will assist in explaining it more thoroughly, where the letter U. denotes that the chord is to be taken upward, and D. downward.

As strings frequently break in tuning, the following remarks for replacing them, may be useful to those who shall make a first attempt. A loop at the stationary end of the string is to be first made, by bending the wire near the end, until the parts cross each other at a considerable angle, the intersection of the wire, is then firmly held between the thumb and finger of the left hand, while it is twisted in the right, by means of the hook at the end of the Tuning Hammer, or by the fingers. In twisting the wire, particular attention must be paid, that the parts twist equally with each other. The other end of the string is to be wound on the straining pin thus, after securing the loop to the stationary pin in the Instrument, hold the straining pin horizontally with its top in the right hand, and passing the wire under it, bring the end round, so that it shall be confined by two or three of the first turns of the string, which must be drawn straight, and wound carefully, by rolling the pin in the fingers until it comes over the hole in which it is to be placed, and hammered down. The straining pin must then be turned by the tuning hammer, until the string is brought to its proper tone. Care must be taken in winding, that the turns advance

regularly without riding, (except a few of the first) and that they end in such part of the straining pin, as will bring the string to a proper bearing on the bridge, when the pin is down in its station.

In consequence of the inflexibility or stiffness of the larger strings of an instrument, a difficulty attends putting them on the straining pins, to obviate which, it is necessary to put the pin into the tuning hammer before winding, and to wind the turns over each other more than is requisite for the smaller strings; then keeping the string stretched very tight, put the pin in its place while it remains in the hammer, and with one hand steadily drawing upon it to prevent it from slipping on the pin, turn with the other, until it is stretched in the instrument to a considerable tension.

Much more might be written on the subject of tuning, but it might perplex rather than instruct; and those who wish to acquire the art, in its nearest approach to perfection, must be indebted to the practical aid of a Master.

Boston, December 29, 1807.—Mr. Dearborn has shewn me the foregoing Directions for tuning, which are similar to the Rules first taught me by my Father, and I consider them as the best to be learned by Youth, attended with this remark,—That if they find the Proof to be defective, it will be expedient to reverse the mode, by going back over the same keys, and leaving the imperfection between G sharp and D sharp.

P. A. VON HAGEN.

FOR THE USEFUL CABINET,

MESSRS. EDITORS,

THE influence of Poetry upon the manners and morals of a people is such, that a celebrated writer has said, "let *me* write the songs of a country, and I care not who writes their laws."—When a political engine of such power is placed by nature under the controul of a few individuals, it is unfortunate that a very small proportion of those few ever think of employing this, her favorite and rare gift, for improving the morals, and consequently the happiness of the world. DIBDEN, who posesses eminent talents in familiar poetry, has laudibly shuned the beaten track of nonsense, to engage the effusions of his wit in the service of morality. If he has written a single song, without stealing into the heart, with a sentiment to mend it, that piece has not fallen under my observation. Extract his writings from any modern song-book and the remainder will show the difference between his taste and those of his predecessors and cotem-

poraries. GARRICK has also left a valuable legacy to posterity, in a song addressed to *Married Ladies*, containing precepts, which, being practically applied, would smooth down the asperities of life, and level even the path of adversity; that piece undoubtedly had an effective influence in society, while it was in fashion; for it is not to be conceived, that sentiments commanding universal approbation can be committed to memory, and frequently repeated, with the attendent charm of music, without producing some practical effect upon the life. Yet had this valuable song been addressed to yonng ladies it might have been still more valuable, because, August is not the season for extracting weeds, which was evidently the author's design. To supply what he omitted, I have attempted a Parody on that Song, and have addressed it to *young Ladies*, but the poetry is so inferior to the original, and the music to which that was set, is so far out of date, and loses so much in comparison with DIBDEN'S music, as hardly to leave an expectation of reviving a single stanza to the tune of Good Nature. yours, C. B.

A PARODY.

YE fair sprightly maids, who lament that your power,
Too transient, secures but the boast of an hour;
Attend to my council, nor blush to be taught,
That Good Humour may charm whom your beauty ne'er caught.

In a spotless white robe, like the feminine dress,
The Poets paint Angels on errands of peace,
Let your angel attire, emblematic be seen,
Of a heart unpolluted, and temper serene.

Be the chief of your study the duties of life,
To excel in the arts which embellish a wife;
With Good Nature refuse, or discreetly be kind;
And nurse with attention, the charms of the mind.

Let your wit never wound with a smart repartee;
Be your converse complacent, engaging and free;
As companions, you then may COMMAND that respect,
Which would FLY FROM YOUR WIT, and give place to neglect.

Thus the good temper'd Girl, that regard shall insure,
Which the bloom of her Beauty would never secure;
And when once so acquired, it will ever survive,
For the art which obtained it, will keep it alive.

FOR THE USEFUL CABINET.

"*Happiness consists in Health.*"

MESSRS. EDITORS,

BY Health I understand, not only freedom from bodily distempers, but the possession of that tranquility, firmness and alacrity of mind which we call good spirits; and which may with propriety be included in our notion of Health, as depending commonly upon the same causes, and yielding to the same management as our bodily constitution.

Health in this sense is the one thing needful. Therfore no labor, expence, self-denial, or restraint to which we subject ourselves for the attainment and preservation of Health, ought in our estimation to be considered too much. Whether it requires us to relinquish lucrative situations, to abstain from favorite indulgences, to controul intemperate passions, to restrain our appetites, or undergo tedious regimens; whatever difficulties it lays us under, if we think of enjoying health and consequently happiness rationally, to them we shall cheerfully submit; and when hoary age adorned with its silver locks arrives, we shall bless our youthful *stars* that we had the resolution.

When we are in perfect health and spirits, we feel in ourselves a happiness independent of any outward gratification whatever, and of which we can give no account. This is an enjoyment which Deity has anexed to human life when it is not abused, and which we may always possess if we regulate our lives according to those simple and intelligible laws of nature, whose transgressions are punished with pain, sickness, premature old age and death.

Industry and regular exercise, temperance and integrity are the necessary companions of health; and *happiness* will be chairman of the meeting whenever these are met together.

From which these conclusions will follow—

First, That, the means of happiness are pretty equally distributed among thedifferent orders of civil society.

Secondly, That vice can have no advantage over virtue, even with respect to the happiness of this world.

LUTING FOR STOVE JOINTS.

Any person who is acquainted with a simple luting, for the joints of Stoves and Stove Funnels, which will withstand the heat, adhere to the Iron, and may be easily obtained and applied, without producing disagreeable or unwholesome effluvia, will oblige the Editors by a communication upon the subject.

MANUFACTURE OF SALT FROM SEA WATER.

THE Editors of the Useful Cabinet will feel obliged by communications upon the subject of manufacturing Salt from Sea-Water, if gentlemen who are engaged therein, will candidly communicate respecting the process, expence and results, without withholding any particular, essential to be known. The object of this enquiry is to present the public with an opportunity of comparing the different methods adopted in this important manufacture, and of giving to all who are pursuing it, a chance of comparing their own process, charges and net proceeds, with those of other manufacturers, thereby to disseminate general information, by which citizens who are so usefully employed, may avail themselves of every improvement.

CASES FOR INSTRUMENTS.

AN unsuccessful attempt was made a short time since, to obtain for a new instrument, abont six inches long, a simple case of Paper or Leather, similar to those made in Europe for spectacles, and many other articles. Any person who possesses the requisite information for establishing a manufacture of this kind, may do public good, by conferring with the Editors upon the subject; and if any parent with a number of children, has a desire to have them thus employed, a communication upon that subject also, will be duly attended to, if the necessary intelligence can be obtained.

STONE, EQUAL TO THE TURKEY OIL-STONE.

A REPORT was some time since circulated, that a stone had been discovered in America, equal to the Turkey oil-stone, in its quality for giving a fine edge to tools. The Editors will feel obliged to any person who shall furnish them with correct information upon the subject.

PRIVATE BOARDING HOUSES.

IT is a dictate of hospitality, that the situation of strangers who visit the Capital be rendered as commodious as may be. Information respecting boarding houses is the first intelligence generally wanted by strangers who contemplate staying in town more than a day or two; but those of whom they enquire may not be disinterested, or may not be sufficiently informed for giving suitable directions; it is therefore proposed by the Editors to publish from time to time, lists of the boarding houses in town, provided those who keep them will send to the office of the Useful Cabinet, their names, and usual terms for boarding, particularizing the street and number.

A TABLE

OF the Weights of the principal commercial places of the world, reduced to ases troy weight of Holland, and grains English troy weight, 13483 ases being equal to 10,000 grains English, and 7000 grains equal to one pound avoirdupois, or 9439 ases. Translated from the German and presented by JOHN C. HAUFF, Esq. His Swedish Majesty's Vice Consul for the N. E. States.

N. B. All the weights, not otherwise particularly expressed are pounds.

AT		*Hol. Ases. Troy wt*	*Gr. Eng. Troy wt.*
Aix-la-Chapelle,	lb.	9754	7235
Aachem or Aachin,	Catti.	19981	14819
Aix,	lb.	8506	6309
Aleppo, of 720 drams,	Rot.	47441	35186
of 700 do.		46123	34209
of 680 do.		44805	33231
of 600 do.		39534	29321
of 400 do.	Ok.	26356	19547
dram,		66	49
Alexandria Zauri,	Rot.	19656	14578
zaid no,		12600	9345
forsori,		8870	6579
mine,		15724	11662
Algiers,	Rot.	11250	8344
Alicant,	large lb.	10791	8004
	small lb.	7194	5336
Altona,	lb.	10080	7476
Amberg,		12480	9256
Amsterdam, merch. wt.		10280	7624
troy wt.		10240	7595
apoth. wt.		7680	5696
Ancona,		6988	5183
Anspach,		10608	7868
Antwerp,		9754	7235
Apothecary's wt. Bern,		7423	5506
German,		7452	5527
English,		7766	5760
French, of 16 ounces.		10188	7556
do. of 12 ounces.		7641	5667
Hanover,		7595	5634
Holland,		7680	5696
Swedish,		7416	5500
Archangel,		8512	6313

AT		Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Ausperg,	heavy,	10220	7580
	light,	9836	7295
Avignon,		8203	6085
Bamberg,	lb.	10103	7494
Barcelona,		8512	6313
Basel,		10188	7556
Batavia,	Catti.	12292	9117
Bayonne,	lb.	10188	7556
Bayrenth,		10770	7988
Bergamo,	light,	6785	5032
	heavy,	16962	12581
Bergen in Norway,		10388	7704
Berg op Zoom,		9900	7342
Berlin,		9750	7232
Bern,		10825	8029
	according to Tillet.	10871	8063
Bilboa,		10188	7556
	iron wt.	9592	7114
Bologna,		7537	5590
Bordeaux,		10228	7586
Braunschweig,		9716	7206
Bremen,		10380	7698
Brescia,		6810	5051
Breslau,		8434	6256
Brugge,		9754	7235
Brussels,		9754	7235
Cadiz,		9592	7114
Cairo,	minas.	12406	9202
	Rot.	8985	6664
Calais,	heavy lb.	10610	7870
	light lb.	8765	6501
Calcutta,	seyras.	5685	4217
Canary Islands,	lb.	9564	7093
Candia,	hervy Rot.	10957	8127
	light Rot.	7115	5277
Canton,	Catti.	12496	9268
Carthagena,	lb.	9592	7114
Castilian wt.		9592	7114
Chambray,		8927	6622
China,	Catti.	12496	9268
Civita Vecchia,	lb.	7101	5267
Coburg,		10608	7868
Cologne,		9728	7215

AT		Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Constantinople,	Ok.	26396	19577
	Lodra or Rot.	11614	8614
Copenhagen see Denmark,			
Corfu,		8500	6304
Corsica,		7166	5315
Coromandel Coast,	Bis.	28498	21137
	Paloins.	712	528
Cracaw,		8426	6250
	new wt.	8408	6236
Cremona,		6822	5060
Cyprus,	Rot.	49492	36707
Denmark,	lb.	10388	7704
Dantzic,		9062	6721
Dieppe,		10280	7624
Dordrecht,		10280	7624
Dresden,		9716	7206
Dublin,		9439	7000
Dunkirk,		8915	6612
Edinburgh,		10233	7590
Elbingen,		8842	6558
Emden,		10336	7666
England,	Troy	7766	5760
	Avoirdupoise	9439	7000
Flensburgh,		9787	7258
Florence,		7273	5394
Frankford on the Maine,	cwt.	10595	7858
	lb wt.	9720	7209
Frankford on the Oder,		9750	7232
French, Poids de Marc,		10188	7556
	Apoth. wt.	7641	5667
Geldern,		9714	7205
Geneva,	large	11462	8501
	small	9552	7084
Genoa, Custom wt.	Rot.	11320	8396
Cassa wt.	Rot.	10291	7633
Cantaro	Rot.	10089	7483
heavy scale wt.	lb.	7140	5295
light scale wt.		6720	4984
Ghent,		9754	7235
Gibraltar,		9728	7215
Gottenburg,	victual wt.	8848	6562
	iron wt.	7078	5250
Guinea,	Rot.	9420	6986

AT			Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Hague,			10280	7624
Hamburg,	merch. wt.		10080	7476
	Cologne wt.		9728	7215
Hanover,	merch. wt.		10127	7511
	Apoth. wt.		7595	5633
Harlem,			10280	7624
Havre de Grace,			11003	8160
Hollandish,	merch. wt.		10280	7624
	Troy wt.		10240	7595
	Apoth. wt.		7680	5696
Holstein,			10059	7460
Hull,			9960	7387
Japan,		Catti.	12277	9106
Java,		Catti.	12766	9469
Ireland,	Avoirdupois,	lb.	11333	8406
Jewish,	talents of 3000 shekels,			
		at 20 Gera.	960000	712000
	Shekel,		320	237
	Gera,		16	12
Kiel,			9916	7354
Konigsberg,	new Berl. wt.		9750	7232
	old wt.		7913	5869
Leipzic,	merch. wt.		9716	7206
	steel wt.		9057	6718
Leyden,			9754	7235
Liebau,			8598	6377
Lyons,	town wt.		8840	6556
	silk wt.		9564	7093
Lisbon,			9552	7084
Leghorn,			7131	5289
London,	avoirdupois,		9439	7000
	kings wt.		14158	10501
	troy wt.		7766	5760
L'Orient,			10188	7556
Lucca,	merch. wt.		7746	5745
	silk wt.		6943	5149
Lucern,			10391	7706
Lubeck,			10059	7460
Lunenburg,			10127	7511
Madeira,			9066	6724
Madras,		Bis.	29497	21877
Madrid,		lb.	9592	7114

AT			Hol. Aset. Troy wt.	Gr. Eng. Troy wt.
Mahon,			9255	6864
Majorca Rotoli or			9746	7229
Malabar Coast,		Bis.	28537	21165
Malacca,		Catti.	14166	10507
Malaga,		lb.	9592	7114
Malta,		Rot.	16045	11900
Manheim,		lb.	10299	7638
Mantua,			6854	5084
Marseilles,			8359	6199
Mecca and Medina,		Rot.	9632	7144
Mecklenburg,		lb.	10056	7458
Memel,			8594	6374
Messina, of 12 ounces.			6610	4903
of 30 do.		Rot.	16524	12255
of 33 do.		Rot.	18176	13481
Milan, peso sottile,		lb.	6822	5060
peso grosso,			15918	11806
Middleburg,		lb.	9738	7223
Minorca,	large,		24912	18476
	small,		8304	6159
Moca,	maund,		27545	20429
Montpellier,		lb.	8470	6282
Morea,	merch. wt.		8316	6168
	silk wt.		10395	7709
	ok.		24948	18503
Morlaix,		lb.	10188	7556
Moseau,			8512	6313
Namur,			9754	7235
Nantes,			10188	7556
Naples,			6676	4951
		Rot.	18693	13864
Narva,		lb.	9738	7223
Newcastle,			10080	7476
Nizza,			6453	4776
Norway,			10388	7704
Novi,			6894	5114
Nurenberg,			10608	7868
Ofen,			10228	7586
Ostend,			9754	7235
Padua,			6952	5156
Palermo,			6610	4903
		sottili Rot.	16524	12255
		grossi Rot.	18176	13481

AT			Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Paris,	merch. wt.	lb.	10188	7556
	medic. wt.		7641	5667
Parma,			7056	5233
Pekin,		Catti.	12482	9258
Pegu,		Bisses.	31981	24719
Pernau,		lb.	8670	6431
Piacenza,			6714	4980
Piedmont,			7750	5748
Pillau,			8311	6164
Pisa,			6779	5027
Poland,	new wt.		8408	6236
Pondichery,		Bisses.	30564	22668
Porto,		lb.	9552	7084
Prague,			10706	7941
	Vienna,		11656	8645
Presburg,			11616	8615
Ragusa,			7560	5607
Ratisbon,			11826	8771
Reggio,			6866	5093
Revel,			8960	6645
Rhodes,		Rot.	49778	36919
Riga,			8701	6450
Rochelle,			10188	7556
Rome,			7342	5446
Rostock,			10634	7887
Rotterdam,		heavy.	10280	7624
		light.	9754	7235
Rouen,	Poids de marc,		10188	7556
	Poids de vicomte,		10800	8010
Roveredo,			7088	5257
Russia,			8512	6313
Ryssel,		heavy.	9658	7164
		light.	8937	6629
Salee,			9728	7215
St. Malo,			10188	7556
St. Petersburg,			8512	6313
St. Sebastian,			10188	7556
Sardinia,			8343	6187
Sayde,	de Acre,	Rot.	49582	36774
	Damascus,	Rot.	38768	28753
Scotland,	Avoirdupois,	lb.	9439	7000
	Troy,		7766	5760
	old,		10268	7615

AT		Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Sweden,	merch. or victual wt.	8848	6562
	iron wt.	7078	5250
	Apothecary's wt.	7416	5500
Seville,		9592	7114
Siam,	Catti.	12760	9464
Sicily,	lb.	6610	4903
	sottili Rot.	16524	12255
	grossi Rot.	18176	13481
Siena,	lb.	9309	6904
Smyrna,	ok.	26182	19419
	Lodre or Rot.	11782	8739
Spain,	Castilian wt. lb.	9592	7114
Speyer,		10608	7868
Stade,		9886	7333
Stettin,		9750	7232
Stockholm,	see Sweden.		
Stralsund,		10059	7460
Straesburg,	heavy.	10188	7556
	light.	9811	7276
Sumatra,	Catti.	26538	19683
Surat,	Seyras.	8799	6526
Surinam,	lb.	10280	7624
Syracuse,		6800	5043
Syria,	Minas.	12292	9117
Tangier,	lb.	10011	7425
Teneriffe,		9555	7086
Tetuan,	Rot.	14756	10944
Thorn,	lb.	8766	6502
Toulouse,		8653	6418
Toulon,		8930	6624
Tournay,		9061	6720
Trevigo,	heavy.	10752	7974
	light.	7074	5247
Triest, Vienna,		11690	8671
Venez-grossi,		9955	7383
sottili,		6300	4672
Tripoli di Soria,	Rot.	37800	28035
	ok.	25200	18690
Tripoly in Barbary,	Rot.	10584	7850
Tunis,		10328	7660
Turin,		7680	5696
Ulm,		9754	7235
Valenciennes,		9787	7258

AT		Hol. Ases. Troy wt.	Gr. Eng. Troy wt.
Venice,	peso grosso.	9955	7383
	peso Sottile.	6300	4672
Verona,	peso grosso.	10350	4677
	peso Sottile.	6924	5135
Vicenza,	heavy.	10143	7522
	light.	7074	5247
Vliessingen,		9692	7188
Vienna,		11656	8645
	saffrons wt.	10608	7868
Warsaw,	small,	7863	5831
	new wt.	8408	6236
Wiburg,	lb.	8450	6268
Windau,		8598	6377
Wismar,		10072	7470
Wittenberg,		9701	7195
Ypern,		8960	6645
Yvica,		9633	7145
Zante and Zefalonia,		9955	7383
Zeeland,		9669	7171
Zelle,		10127	7511
Zurich,	heavy.	10972	8138
	light.	9753	7234

The French Weights, according to the New System.

old wt.

Miriagramme, equal to 10000 grammes, about 20 & 1-2lb.
Kilogramme, equal to 1000 grammes, „ 2 lb.
Hectogramme, equal to 100 grammes, „ 3 oz. 2 gros.
Decagramme, equal to 10 grammes, „ 2 gros. 44 gr.
Gramme, or unity of weights, is the absolute weight of a bulk of pure water, equal to the cube of the one hundredth part of a *Metre** and at the temperature of dissolving ice, its weight is about 19 grains.
The gross corresponds in decimals to 3,8215 Grammes.
Decigramme, is the 10th part of a gramme, „ 2 grains.
Centigramme, the 100th part of a gramme, „ 1-5th of a grain.
Milligramme, the 1000th part of a gramme, „ 1-50th of a grain.

According to the Old System.

72 grains made 1 gros. 8 gross made 1 ounce. 16 ounces made 1 pound of Paris and 100 lb. of Paris made 109 lb. 8 oz. English

* The *Metre*, is a specific measure equal to the 10 thousandth part of the arc of a terrestial meridian, comprised between either pole and the equator; it is about 3 feet 11 1-2 lines. *Centimetre*, is the 100th part of a metre, or about 4 1-2 lines.

FOR THE USEFUL CABINET.

MESSRS. EDITORS,

THE inclosed communication is intended to draw the attention of men of science, to render their studies more useful to the general pursuits of life; if you think proper to insert it in your first number it may procure further correspondence from others, as well as from one who proposes to become your pupil and constant reader.

a. b. c.

jo.

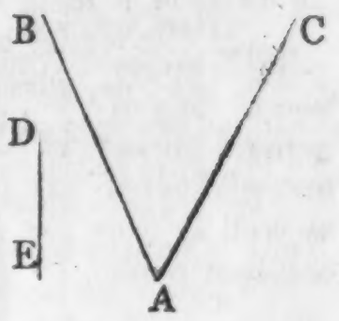
The elements of mathematics, the principles of natural philosophy and experiments on the force and application of the mechanic powers, have generally been taught in lectures to those whose after course of life has had little or no connection with those studies, and perhaps from this cause it has arisen that these studies have been too much considered as mere matter of science, necessary to be taught in Colleges, and to be as readily forgotten as their Hebrew and Greek—how few of those who have been drawn or driven thro' the reading of some of the books of Euclid, know of any useful purpose to which the propositions contained in those books can be applied; and on the other hand how few of the architects, mechanics and manufacturers who are daily pursuing their business by the habit of certain rules, have any knowledge of the principles from which those rules are derived, for example, when to square the corner of a house they measure three on one side four on the other, and stretch or contract the angle until a diagonal of five shall hit on the same points, can they satisfy themselves of the correctness of the rule, or shew why it is preferable to measuring twelve on each side and using seventeen for a diagonal. If the elements are studied with a view to general utility in the common concerns of life, new combinations of principles, new elements may be discovered of high importance to society; but while theory and practice are so far separated, while the elements of science are studied merely as such, is it probable that the useful arts can gain any new rules, or that any beneficial results can accrue to community? Under these impressions, and with hopes of exciting more able pens to furnish your pages with valuable communications, the following propositions are submitted for the consideration of your readers, which have for their results some important rules for the benefit of Artists and perfection of Arts, and which coming from a pupil will be presented in the form of Questions.

Prop. 1st.

Can a line be drawn, terminating in the sides of an angle, and so in position that it shall be at right angles to a line which shall bisect the angle?

Prop. 2d.

Can a line be drawn, equal to a given line, and terminating in the sides of an angle, in position so as to be at right angles to a line which shall bisect the angle? i. e. between the sides B. A. C. A. of the angle, B. A. C. to draw a line equal to the line D. E. and so that it shall be at right angles to a line which shall bisect the angle?



ORIGIN OF ARTS.

FOR THE USEFUL CABINET.

MESSRS. EDITORS,

A brief chronological history of the various inventions and discoveries in the sciences and mechanic arts, to which mankind are indebted for civilization, and all the valuable enjoyments of wealth, power, equal laws, and civil governments, it is presumed will not only be acceptable to the generality of the readers of your *Useful Cabinet*, but will afford that information to the mechanics of our Country in particular, which will be useful to them, and which they cannot now obtain without recurence to histories and Encyclo edias, too voluminous for them to peruse. Should this design meet your approbation and that of the public, the communication will be continued in future numbers. I shall commence with the most early inventions and discoveries of which history gives any account, and trace their progress and improvements, down to the present time, in as concise a view as the nature of the subject will admit. The date and author's name will also be given when they can be assertained.

If it be true that the condition of mankind is continually progressing to a greater degree of perfection and happiness, and that each succeeding generation makes farther advances in facilitating the attainment of these important objects, it will be of some consequence to know the means by which this advancement is made, in order that proper encouragement may be given to those whose labors are immediately directed to this end.

When we unfold the historic page, and retrace the deeds of former times, we are struck with astonishment at the genius and labor the historian has exhibited, in raising monuments of lasting fame to the memory of ambitious adventurers, whose lives were spent in the destruction of their fellow creatures, while scarcely

any mention is made of those benefactors, who by their inventions and discoveries have conferred upon mankind real and permanent benefits, which no time can destroy, and which will descend and be enjoyed by the latest posterity. Unfortunately history furnishes laurels for the Conqueror only, whence the ambitious are led to believe, that the only sure road to fame leads thro' oceans of human blood, shed in destroying the lives and liberties of their fellow men.

From scenes of destruction the contemplative mind will turn with pleasure, and view those, in which the felicity of millions of rational beings are promoted. Here too may be seen testimonies of that creative genius exerted in the cause of humanity, which adorns the character of man and adds dignity to his nature. It is a subject of retrospection from which the fairest lessons of morality may be derived. To create a sense of gratitude toward those, who have multiplied the blessings of life, and a spirit of patronage in men, whose standing in society enables them to encourage the useful arts, and thereby promote the welfare of our country, is an object well worthy the attention of every benevolent and philosophic mind.

By a few inventions and discoveries in the arts and sciences, the face of the world has been changed from the gloomy haunts of barbarity, into cultivated fields of civilization and refinement; and man, no longer confined to the little circle of his native village, is enabled to traverse the ocean, exploring the remotest seas, and to return in safety richly laden with the produce of every clime. Happy the country, that make a right use of the means, which a bounteous Providence has put into their hands, to improve and perpetuate the blessings of life!

THE invention of letters, according to history, is ascribed to Memnon, an Egyptian, who flourished 1822 years B. C. (before the Christian era). For this invention he was worshiped as a deity by his countrymen, who erected a colossal statue to his memory. What were the particular characters of his letters history does not say. But from the circumstance of the children of Israel emigrating from Egypt upward of 300 years after, it is probable they were those in which the Hebrew language was written. For Moses, the first Hebrew writer, being educated according to his own account in the Egyptian learning, must with the rest of his nation, have adopted the character and language of the people among whom they lived. Before this discovery, the Egyptians wrote in hieroglyphics, corresponding with the present characters of the Chinese, which are now so

numerous, that it is the work of an age to learn half their language.

In 1498, B. C. Cadmus, a Phoenician, introduced the use of letters into Greece. Some maintain however, that the alphabet which he brought from Phoenicia, was only different from that which the ancient inhabitants of Greece before used. This alphabet consisted only of 16 letters, to which Palamides a Grecian afterwards added four, and Simonides of Melos the same number, which rendered it complete. The characters of this alphabet were different from those of the Hebrew, and undoubtedly far superior to them. The Greek language, about four hundred years after, was rendered a most copious and expressive language, as appears from many Grecian writers, especially Homer, who flourished about this time, and from whom we have the finest specimens of real poetic genius. Its richness, harmony and expression have never been exceeded by any other. Tho' a dead language, it will long remain a monument of Grecian learning. The English language is indebted to it for many of its most valuable and prominent features.

When the Latin language was first formed is not precisely known. But it was in general use among the nations of Italy, several centuries before the Christian era. Many of its letters are the same as the Greek. It is a noble and powerful language and a good characteristic of the Romans who spoke it. In the age of Cicero and Virgil, who flourished a few years B. C. it was perfected, as the works they have left sufficiently indicate. Since which time various languages have been formed by different nations of Europe, and all indebted more or less to the Hebrew, Greek, and Latin.

From Pope, Addison, Johnson, and several other men eminent for their learning, the English language has, within the last century, received such improvements as justly entitle it to the first rank among modern languages. Its excellence may be illustrated by an anecdote of a gentleman equally celebrated for his courage in the field and for his extensive erudition. An Irish soldier disputing one day with a German concerning the superiority of their respective languages, agreed to refer the determination of the dispute to their Commander, who having heard their several claims, put an end to the contention in the following manner. "Were I," replied the General, "to command an army, I should choose to speak German. If to chat with the ladies, I should prefer the French language, If I wanted to talk with the devil, I would certainly speak in Irish. But if I wanted to address my God, I would speak in English."

Any comments upon the valuable invention of letters, would be entirely useless, as learning is so generally diffused at the present day, by means of other inventions in connection with this, that every person must be sensible of its importance, and of the great advantage it has been in promoting the happiness of mankind.

Upward of 1400 years B. C. iron was discovered in Crete, by the accidental burning of the woods on mount Ida. This metal, in consequence of its utility, may justly be considered the most valuable of all metals. By whom it was first refined and brought into general use is unknown. But it is supposed that Vulcan, who flourished about this time was the first discoverer of its useful properties, as he is not only styled the patron of all artists, who work in it, but was worshiped for many centuries by his countrymen as one of their Gods. It is evident however, that it was soon brought into general use, from the account history gives of the improvements made a little after this time, in the condition of mankind, which could not have been introduced without the means derived from this important discovery. In the reign of king Solomon which was about 1000 years B. C. we find it had been carried to a great degree of refinement, as at the building of his temple which exceeded all other buildings of that age for its grandeur and neatness of workmanship, he had well tempered tools made of this metal, with which his workmen wrought in gold, silver, brass, stone, ivory and wood, according to his own account.

The most important discoveries and improvements in iron are of modern date, such as its magnetic properties, (for which see the invention of the mariner's compass) its oxids for coloring cotton, and its conversion into steel.

(To be Continued.)

IF any of our Readers shall furnish demonstrative or satisfactory answers to the mathematical propositions, two other propositions which we have on file, depending on the same principles, and having the same tendency will appear in the next number, if in the mind of a correspondent there shall exist a distinction between scientific and mechanical modes of demonstration, a clear description of such distinction is requested; some expounders on Euclid's Elements admit the constructing of a mathematical figure without making it necessary that the modus operandi should be known, while others, as Whiston for example, directs the manner of performing, and describes the instruments for constructing mathematical figures. THE EDITORS.

No. II.—Vol. I.

OF THE

USEFUL CABINET.

FEBRUARY, 1808.

Published the first Thursday in every month.

Subscribers for this work, will be received in Boston, at the bookstores of Messrs. David West, William Pelham, and Wm. Blagrove, Cornhill, and by E. C. Beals, Printer, No. 10, State-Street, Messrs. Thomes & Whipple, Newburyport, and such other gentlemen as have obligingly taken charge of subscriptions in various parts of the country; who are respectfully desired to return the names seasonably for insertion on the cover of the next number. After which Subscribers at three dollars per year will be received by the Agents.—Subscribers not residing in Boston, will please to designate the places where their numbers shall be left *in this town* to be forwarded.

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Boston, Feb. 3, 1808.

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5d and	6d	do.	10½	do. do.
8d do.	10d	do.	10	do. do.
12d do.	20d	do.	9½	do. do.

The above Nails being Cut and Headed by one simple operation, are more uniformly alike, and have less waste than any Nails heretofore offered in this market for sale.

Feb. 3.

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PILSBURY'S patent Machines for Shelling Indian Corn, are for sale by JACOB WELSH, the Proprietor in *Boston*. One of these Machines with the

NEW IMPROVEMENTS,

will be exhibited at Mr. DEARBORN'S Factory, on Monday next. Purchasers under the original Patent, may by application to said WELSH, obtain a right to use the Improvements in their several Districts. *Feb. 3.*